Analytical Laboratory

13339 Hagers Ferry Road
Huntersville, NC 28078-7929
McGuire Nuclear Complex - MG03A2
Phone: 980-875-5245 Fax: 980-875-4349

Order Summary Report

Order Number: **J13030084**

Project Name: WWTS - Biweekly (1)

Customer Name(s): BIll K, Wayne C, Melonie M, and T. THORNTON

Customer Address: 3195 Pine Hall Rd
Mailcode: Belews Steam Station
Belews Creek, NC 28012

Lab Contact: Jason C Perkins Phone: 980-875-5348

Report Authorized By: (Signature) Digitally signed by jay perkins DN: cn=jay perkins, o=Analytical Lab, ou, email=jay.perkins@duke-energy.com, c=US Date: 2013.04.04 16:15:00 -04'00'
Jason C Perkins **Date:** 4/4/2013

Program Comments:

Please contact the Program Manager (Jason C Perkins) with any questions regarding this report.

Data Flags & Calculations:

Any analytical tests or individual analytes within a test flagged with a Qualifier indicate a deviation from the method quality system or quality control requirement. The qualifier description is found at the end of the Certificate of Analysis (sample results) under the qualifiers heading. All results are reported on a dry weight basis unless otherwise noted. Subcontracted data included on the Duke Certificate of Analysis is to be used as information only. Certified vendor results can be found in the subcontracted lab final report. Duke Energy Analytical Laboratory subcontracts analyses to other vendor laboratories that have been qualified by Duke Energy to perform these analyses except where noted.

Data Package:

This data package includes analytical results that are applicable only to the samples described in this narrative. An estimation of the uncertainty of measurement for the results in the report is available upon request. This report shall not be reproduced, except in full, without the written consent of the Analytical Laboratory. Please contact the Analytical laboratory with any questions. The order of individual sections within this report is as follows:

Job Summary Report, Sample Identification, Technical Validation of Data Package, Analytical Laboratory Certificate of Analysis, Analytical Laboratory QC Reports, Sub-contracted Laboratory Results, Customer Specific Data Sheets, Reports & Documentation, Customer Database Entries, Test Case Narratives, Chain of Custody (COC)

Certification:

The Analytical Laboratory holds the following State Certifications : North Carolina (DENR) Certificate #248, South Carolina (DHEC) Laboratory ID # 99005. Contact the Analytical Laboratory for definitive information about the certification status of specific methods.

Sample ID's & Descriptions:

Sample ID	Plant/Station	Collection Date and Time	Collected By	Sample Description
2013005228	BELEWS	13-Mar-13 8:00 AM	W. B. WORKMAN	FGD Purge Eff
2013005229	BELEWS	13-Mar-13 8:05 AM	W. B. WORKMAN	EQ TANK EFF.
2013005230	BELEWS	13-Mar-13 8:10 AM	W. B. WORKMAN	BIOREACTOR 1 INF.
2013005231	BELEWS	13-Mar-13 8:15 AM	W. B. WORKMAN	BIOREACTOR 2 INF.
2013005232	BELEWS	13-Mar-13 8:20 AM	W. B. WORKMAN	BIOREACTOR 2 EFF.
2013005233	BELEWS	13-Mar-13 8:25 AM	W. B. WORKMAN	FILTER BLANK
2013005234	BELEWS	05-Mar-13 10:50 AM	C.KNOX	Trip Blank
2013005235	BELEWS	13-Mar-13 8:10 AM	W. B. WORKMAN	BIOREACTOR 1 INF (HG)
2013005236	BELEWS	13-Mar-13 8:10 AM	W. B. WORKMAN	HG BLANK BIOREACTOR 1 INF.
2013005237	BELEWS	13-Mar-13 8:15 AM	W. B. WORKMAN	BIOREACTOR 2 INF (HG)
2013005238	BELEWS	13-Mar-13 8:15 AM	W. B. WORKMAN	Hg Blk BioReactor 2 Inf
2013005239	BELEWS	13-Mar-13 8:20 AM	W. B. WORKMAN	BIOREACTOR 2 EFF (HG)
2013005240	BELEWS	13-Mar-13 8:20 AM	W. B. WORKMAN	Hg Blk BioReactor 2 Eff

13 Total Samples

Technical Validation Review

Checklist:

COC and .pdf report are in agreement with sample totals and analyses (compliance programs and procedures).	☑ Yes	☐ No
All Results are less than the laboratory reporting limits.	☐ Yes	☑ No
All laboratory QA/QC requirements are acceptable.	☑ Yes	☐ No

Report Sections Included:

- ☑ Job Summary Report
- ☑ Sample Identification
- ☑ Technical Validation of Data Package
- ☑ Analytical Laboratory Certificate of Analysis
- ☐ Analytical Laboratory QC Report
- ☑ Sub-contracted Laboratory Results
- ☐ Customer Specific Data Sheets, Reports, & Documentation
- ☐ Customer Database Entries
- ☑ Chain of Custody
- ☑ Electronic Data Deliverable (EDD) Sent Separately

Reviewed By: DBA Account Date: 4/4/2013

Certificate of Laboratory Analysis

This report shall not be reproduced, except in full.

Order # J13030084

Site: FGD Purge Eff **Sample #: 2013005228**

Collection Date: 13-Mar-13 8:00 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
INORGANIC IONS BY IC								
Bromide	**92**	mg/L		5	50	EPA 300.0	03/22/2013 17:04	BGN9034
MERCURY (COLD VAPOR) IN WATER								
Mercury (Hg)	**217**	ug/L		5	100	EPA 245.1	03/21/2013 12:58	AGIBBS
DISSOLVED METALS BY ICP								
Manganese (Mn)	**8.56**	mg/L		0.05	10	EPA 200.7	03/18/2013 15:27	MHH7131
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**188**	mg/L		0.5	10	EPA 200.7	03/20/2013 12:58	MHH7131
Manganese (Mn)	**9.86**	mg/L		0.05	10	EPA 200.7	03/20/2013 12:58	MHH7131
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**130**	ug/L		10	10	EPA 200.8	03/22/2013 12:47	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**210**	ug/L		10	10	EPA 200.8	03/19/2013 12:43	KRICHAR
Chromium (Cr)	**281**	ug/L		10	10	EPA 200.8	03/19/2013 12:43	KRICHAR
Copper (Cu)	**127**	ug/L		10	10	EPA 200.8	03/19/2013 12:43	KRICHAR
Nickel (Ni)	**268**	ug/L		10	10	EPA 200.8	03/19/2013 12:43	KRICHAR
Selenium (Se)	**2980**	ug/L		10	10	EPA 200.8	03/19/2013 12:43	KRICHAR
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:43	KRICHAR
Zinc (Zn)	**218**	ug/L		10	10	EPA 200.8	03/19/2013 12:43	KRICHAR
SELENIUM SPECIATION - (Analysis Performed by Applied Speciation and Consulting, LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_AS&C
TOTAL DISSOLVED SOLIDS								
TDS	**17000**	mg/L		200	1	SM2540C	03/19/2013 15:35	SWILLI3

Site: EQ TANK EFF. **Sample #: 2013005229**

Collection Date: 13-Mar-13 8:05 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY (COLD VAPOR) IN WATER								
Mercury (Hg)	**155**	ug/L		2.5	50	EPA 245.1	03/21/2013 13:00	AGIBBS
DISSOLVED METALS BY ICP								
Manganese (Mn)	**8.18**	mg/L		0.05	10	EPA 200.7	03/18/2013 15:30	MHH7131
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**207**	mg/L		0.5	10	EPA 200.7	03/20/2013 13:02	MHH7131
Manganese (Mn)	**9.65**	mg/L		0.05	10	EPA 200.7	03/20/2013 13:02	MHH7131

Certificate of Laboratory Analysis

Order # J13030084

Site: EQ TANK EFF. **Sample #: 2013005229**

Collection Date: 13-Mar-13 8:05 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**94.0**	ug/L		10	10	EPA 200.8	03/22/2013 12:50	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**185**	ug/L		10	10	EPA 200.8	03/19/2013 12:47	KRICHAR
Chromium (Cr)	**246**	ug/L		10	10	EPA 200.8	03/19/2013 12:47	KRICHAR
Copper (Cu)	**114**	ug/L		10	10	EPA 200.8	03/19/2013 12:47	KRICHAR
Nickel (Ni)	**260**	ug/L		10	10	EPA 200.8	03/19/2013 12:47	KRICHAR
Selenium (Se)	**2700**	ug/L		10	10	EPA 200.8	03/19/2013 12:47	KRICHAR
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:47	KRICHAR
Zinc (Zn)	**196**	ug/L		10	10	EPA 200.8	03/19/2013 12:47	KRICHAR

Site: BIOREACTOR 1 INF. **Sample #: 2013005230**

Collection Date: 13-Mar-13 8:10 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
DISSOLVED METALS BY ICP								
Manganese (Mn)	**2.37**	mg/L		0.05	10	EPA 200.7	03/18/2013 15:34	MHH7131
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**193**	mg/L		0.5	10	EPA 200.7	03/20/2013 13:06	MHH7131
Manganese (Mn)	**2.51**	mg/L		0.05	10	EPA 200.7	03/20/2013 13:06	MHH7131
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**84.8**	ug/L		10	10	EPA 200.8	03/22/2013 12:54	KRICHAR
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:51	KRICHAR
Chromium (Cr)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:51	KRICHAR
Copper (Cu)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:51	KRICHAR
Nickel (Ni)	**34.5**	ug/L		10	10	EPA 200.8	03/19/2013 12:51	KRICHAR
Selenium (Se)	**60.2**	ug/L		10	10	EPA 200.8	03/19/2013 12:51	KRICHAR
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:51	KRICHAR
Zinc (Zn)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:51	KRICHAR
SELENIUM SPECIATION - (Analysis Performed by Applied Speciation and Consulting, LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_AS&C

Certificate of Laboratory Analysis

Order # J13030084

Site: BIOREACTOR 2 INF. **Sample #: 2013005231**

Collection Date: 13-Mar-13 8:15 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**198**	mg/L		0.5	10	EPA 200.7	03/20/2013 13:10	MHH7131
Manganese (Mn)	**2.92**	mg/L		0.05	10	EPA 200.7	03/20/2013 13:10	MHH7131
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:54	KRICHAR
Chromium (Cr)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:54	KRICHAR
Copper (Cu)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:54	KRICHAR
Nickel (Ni)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:54	KRICHAR
Selenium (Se)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:54	KRICHAR
Silver (Ag)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:54	KRICHAR
Zinc (Zn)	**< 10**	ug/L		10	10	EPA 200.8	03/19/2013 12:54	KRICHAR

Site: BIOREACTOR 2 EFF. **Sample #: 2013005232**

Collection Date: 13-Mar-13 8:20 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
INORGANIC IONS BY IC								
Bromide	**110**	mg/L		5	50	EPA 300.0	03/22/2013 17:22	BGN9034
MERCURY (COLD VAPOR) IN WATER								
Mercury (Hg)	**< 1**	ug/L		1	20	EPA 245.1	03/21/2013 13:03	AGIBBS
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**204**	mg/L		0.5	10	EPA 200.7	03/20/2013 13:14	MHH7131
Manganese (Mn)	**4.61**	mg/L		0.05	10	EPA 200.7	03/20/2013 13:14	MHH7131
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 5**	ug/L		5	5	EPA 200.8	03/19/2013 12:58	KRICHAR
Chromium (Cr)	**< 5**	ug/L		5	5	EPA 200.8	03/19/2013 12:58	KRICHAR
Copper (Cu)	**< 5**	ug/L		5	5	EPA 200.8	03/19/2013 12:58	KRICHAR
Nickel (Ni)	**< 5**	ug/L		5	5	EPA 200.8	03/19/2013 12:58	KRICHAR
Selenium (Se)	**< 5**	ug/L		5	5	EPA 200.8	03/19/2013 12:58	KRICHAR
Silver (Ag)	**< 5**	ug/L		5	5	EPA 200.8	03/19/2013 12:58	KRICHAR
Zinc (Zn)	**< 5**	ug/L		5	5	EPA 200.8	03/19/2013 12:58	KRICHAR
SELENIUM SPECIATION - (Analysis Performed by Applied Speciation and Consulting, LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_AS&C

Certificate of Laboratory Analysis

Order # J13030084

Site: FILTER BLANK — **Sample #: 2013005233**
Collection Date: 13-Mar-13 8:25 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
DISSOLVED METALS BY ICP								
Manganese (Mn)	**0.033**	mg/L		0.005	1	EPA 200.7	03/18/2013 15:11	MHH7131
DISSOLVED METALS BY ICP-MS								
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	03/22/2013 12:12	KRICHAR

Site: Trip Blank — **Sample #: 2013005234**
Collection Date: 05-Mar-13 10:50 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
TOTAL RECOVERABLE METALS BY ICP								
Boron (B)	**< 0.05**	mg/L		0.05	1	EPA 200.7	03/20/2013 12:54	MHH7131
Manganese (Mn)	**< 0.005**	mg/L		0.005	1	EPA 200.7	03/20/2013 12:54	MHH7131
TOTAL RECOVERABLE METALS BY ICP-MS								
Arsenic (As)	**< 1**	ug/L		1	1	EPA 200.8	03/19/2013 12:36	KRICHAR
Chromium (Cr)	**< 1**	ug/L		1	1	EPA 200.8	03/19/2013 12:36	KRICHAR
Copper (Cu)	**< 1**	ug/L		1	1	EPA 200.8	03/19/2013 12:36	KRICHAR
Nickel (Ni)	**< 1**	ug/L		1	1	EPA 200.8	03/19/2013 12:36	KRICHAR
Selenium (Se)	**< 1**	ug/L		1	1	EPA 200.8	03/19/2013 12:36	KRICHAR
Silver (Ag)	**< 1**	ug/L		1	1	EPA 200.8	03/19/2013 12:36	KRICHAR
Zinc (Zn)	**< 1**	ug/L		1	1	EPA 200.8	03/19/2013 12:36	KRICHAR
SELENIUM SPECIATION - (Analysis Performed by Applied Speciation and Consulting, LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_AS&C

Site: BIOREACTOR 1 INF (HG) — **Sample #: 2013005235**
Collection Date: 13-Mar-13 8:10 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Site: HG BLANK BIOREACTOR 1 INF. — **Sample #: 2013005236**
Collection Date: 13-Mar-13 8:10 AM — Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Certificate of Laboratory Analysis

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Order # J13030084

Site: HG BLANK BIOREACTOR 1 INF. **Sample #: 2013005236**
Collection Date: 13-Mar-13 8:10 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst

Site: BIOREACTOR 2 INF (HG) **Sample #: 2013005237**
Collection Date: 13-Mar-13 8:15 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Site: Hg Blk BioReactor 2 Inf **Sample #: 2013005238**
Collection Date: 13-Mar-13 8:15 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Site: BIOREACTOR 2 EFF (HG) **Sample #: 2013005239**
Collection Date: 13-Mar-13 8:20 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

Site: Hg Blk BioReactor 2 Eff **Sample #: 2013005240**
Collection Date: 13-Mar-13 8:20 AM Matrix: OTHER

Analyte	Result	Units	Qualifiers	RDL	DF	Method	Analysis Date/Time	Analyst
MERCURY 1631 - (Analysis Performed by Brooks Rand Labs LLC)								
Vendor Parameter	**Complete**					Vendor Method		V_BRAND

APPLIED SPECIATION AND CONSULTING, LLC

18804 Northcreek Parkway Bothell, WA, 98011
Tel: (425) 483-3300 Fax: (425) 483-9818
www.appliedspeciation.com

March 27, 2013

Jay Perkins
Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd.
Huntersville, NC 28078
(704) 875-5245

Project: Belews - FGD WWTS Bi-Monthly Sampling) (LIMS #J13030084)

Dear Mr. Perkins,

Attached is the report associated with four (4) aqueous samples submitted for selenium speciation on March 18, 2013. The samples were received in a sealed cooler at -0.2°C on March 19, 2013. Selenium speciation analysis was performed via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS). Any issues associated with the analysis are addressed in the following report.

If you have any questions, please feel free to contact me at your convenience.

Sincerely,

Russell Gerads
Vice President
Applied Speciation and Consulting, LLC

Applied Speciation and Consulting, LLC

Report prepared for:

Jay Perkins
Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd.
Huntersville, NC 28078

Project: Belews - FGD WWTS Bi-Monthly Sampling) (LIMS #J13030084)

March 27, 2013

1. Sample Reception

Four (4) aqueous samples in 125mL HDPE bottles (provided by Applied Speciation and Consulting) were submitted for selenium speciation analysis on March 18, 2013. The samples were received on March 19, 2013 in a sealed container at -0.2°C.

The samples were received in a laminar flow clean hood, void of trace metals contamination and ultra-violet radiation, and were designated discrete sample identifiers. An aliquot of each sample was filtered (0.45µm) and each filtrate was stored in a secure, monitored cryofreezer (maintained at a temperature of -80^{o}C) until selenium speciation analysis could be performed via ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS).

2. Sample Preparation

All sample preparation is performed in laminar flow clean hoods known to be free from trace metals contamination. All applied water for dilutions and sample preservatives are monitored for contamination to account for any biases associated with the sample results.

Selenium Speciation Analysis by IC-ICP-CRC-MS Prior to analysis, an aliquot of each sample was filtered with a syringe filter (0.45µm) and injected directly into an autosampler vial. No further sample preparation was performed as any chemical alteration of a sample may shift the equilibrium of the system, resulting in changes in speciation ratios.

3. Sample Analysis

All sample analysis is preceded by a minimum of a five-point calibration curve spanning the entire concentration range of interest. Calibration curves are performed at the beginning of

each analytical day. All calibration curves, associated with each species of interest, are standardized by linear regression resulting in a response factor. All sample results are **instrument blank corrected** to account for any operational biases associated with the analytical platform.

Prior to sample analysis, all calibration curves are verified using second source standards which are identified as initial calibration verification standards (ICV).

Ongoing instrument performance is identified by the analysis of continuing calibration verification standards (CCV) and continuing calibration blanks (CCB) at a minimum interval of every ten analytical runs.

Selenium Speciation Analysis by IC-ICP-CRC-MS Each sample for selenium speciation analysis was analyzed by ion chromatography inductively coupled plasma collision reaction cell mass spectrometry (IC-ICP-CRC-MS) on March 26, 2013. An aliquot of each sample is injected onto an anion exchange column and mobilized by a basic (pH > 7) gradient. The eluting selenium species are then introduced into a radio frequency (RF) plasma where energy-transfer processes cause desolvation, atomization, and ionization. The ions are extracted from the plasma through a differentially-pumped vacuum interface and travel through a pressurized chamber (CRC) containing a reaction gas which preferentially reacts with interfering ions of the same target mass to charge ratios (m/z). A solid-state detector detects ions transmitted through the mass analyzer and the resulting current is processed by a data handling system.

Retention times for each eluting species are compared to known standards for species identification.

4. Analytical Issues

The overall analyses went well and no significant analytical issues were encountered. All quality control parameters associated with the samples were within acceptance limits.

The estimated method detection limits (eMDLs) for selenite, selenate, and selenocyanate are generated from replicate analyses of the lowest standard in the calibration curve. Not all selenium species are present in preparation blanks; therefore, eMDL calculations based on preparation blanks are artificially biased low.

The eMDL for methylseleninic acid and selenomethionine is calculated from the average eMDL of selenite, selenate, and selenocyanate. The calibration does not contain methylseleninic acid or selenomethionine due to impurities in these standards which would bias the results for other selenium species.

If you have any questions or concerns regarding this report, please feel free to contact me.

Sincerely,

Russell Gerads
Vice President
Applied Speciation and Consulting, LLC

Selenium Speciation Results for Duke Energy
Project Name: Belews - FGD WWTS Bi-Monthly Sampling)
Contact: Jay Perkins
LIMS #J13030084

Date: March 27, 2013
Report Generated by: Russell Gerads
Applied Speciation and Consulting, LLC

Sample Results

Sample ID	Se(IV)	Se(VI)	SeCN	MeSe(IV)	SeMe	Unknown Se Species (n)
FGD Purge Eff	46.0	29.7	ND (< 1.5)	ND (< 2.1)	ND (< 2.1)	0.0 (0)
BioReactor 1 Inf	15.3	30.4	ND (< 0.30)	1.18	ND (< 0.43)	2.69 (1)
BioReactor 2 Eff	ND (< 0.49)	ND (< 0.49)	ND (< 0.30)	ND (< 0.43)	ND (< 0.43)	0.0 (0)
Metals Trip Blk	0.228	0.094	ND (< 0.015)	ND (< 0.021)	ND (< 0.021)	0.0 (0)

All results reflect the applied dilution and are reported in µg/L
ND = Not detected at the applied dilution
SeCN = Selenocyanate
MeSe(IV) = Methylseleninic acid
SeMe = Selenomethionine
Unknown Se Species = Total concentration of all unknown Se species observed by IC-ICP-MS

Selenium Speciation Results for Duke Energy
Project Name: Belews - FGD WWTS Bi-Monthly Sampling)
Contact: Jay Perkins
LIMS #J13030084

Date: March 27, 2013
Report Generated by: Russell Gerads
Applied Speciation and Consulting, LLC

Quality Control Summary - Preparation Blank Summary

Analyte (µg/L)	PBW1	PBW2	PBW3	PBW4	Mean	StdDev	eMDL*	eMDL 10x	eMDL 200x	eMDL 1000x
Se(IV)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.024	0.49	2.4
Se(VI)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.024	0.49	2.4
SeCN	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.015	0.30	1.5
MeSe(IV)	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.021	0.43	2.1
SeMe	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.021	0.43	2.1

eMDL = Estimated Method Detection Limit
*Please see narrative regarding eMDL calculations

Quality Control Summary - Certified Reference Materials

Analyte (µg/L)	CRM	True Value	Result	Recovery
Se(IV)	LCS	9.57	9.407	98.3
Se(VI)	LCS	9.48	9.051	95.5
SeCN	LCS	8.92	8.658	97.1
MeSe(IV)	LCS	6.47	5.959	92.1
SeMe	LCS	9.32	8.532	91.5

Selenium Speciation Results for Duke Energy
Project Name: Belews - FGD WWTS Bi-Monthly Sampling)
Contact: Jay Perkins
LIMS #J13030084

Date: March 27, 2013
Report Generated by: Russell Gerads
Applied Speciation and Consulting, LLC

Quality Control Summary - Matrix Duplicates

Analyte (µg/L)	Sample ID	Rep 1	Rep 2	Mean	RPD
Se(IV)	Batch QC	4.5	4.1	4.3	9.2
Se(VI)	Batch QC	351.1	353.3	352.2	0.6
SeCN	Batch QC	ND (< 1.5)	ND (< 1.5)	NC	NC
MeSe(IV)	Batch QC	ND (< 2.1)	ND (< 2.1)	NC	NC
SeMe	Batch QC	ND (< 2.1)	ND (< 2.1)	NC	NC

ND = Not detected at the applied dilution
NC = Value was not calculated due to one or more concentrations below the eMDL

Quality Control Summary - Matrix Spike/ Matrix Spike Duplicate

Analyte (µg/L)	Sample ID	Spike Conc	MS Result	Recovery	Spike Conc	MSD Result	Recovery	RPD
Se(IV)	Batch QC	5560	5838	104.9	5560	5869	105.5	0.5
Se(VI)	Batch QC	5045	5131	94.7	5045	5135	94.8	0.1
SeCN	Batch QC	4575	3657	79.9	4575	3757	82.1	2.7

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Pg 1 of 3

Duke Energy

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

ORDER# J13030084 | MATRIX: OTHER | Samples Originating From NC X SC ___

Logged By JT | Date & Time 3-15-13 1034

SAMPLE PROGRAM: Water ___ Ground ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___

3.2 Cooler Temp (C)

AS&C PO#133241

[19]Page 1 of 2
DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Customer must Complete

1)Project Name: Belews - FGD WWTS Bi-Monthly Sampling)		2)Phone No:
2) Client: Bill Kennedy, Melonie Martin, Wayne Chapman, Travis Thornton **		4)Fax No:
5)Business Unit:	6)Process:	Mail Code:
8)Oper. Unit:	9)Res. Type:	10)Reso. Center:

[15]Preserv.: 1=HCl 2=H_2SO_4 3=HNO_3 4=Ice 5=None

MR #

Customer to complete all appropriate non-shaded areas.

Sampling conducted: 2nd and 4th Wednesday

Customer to complete appropriate columns to right

LAB USE ONLY [11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	TDS	Br (Dionex)	Metals* + Hg**	Mn (ICP) Se (IMS), sol	Se, speciation - vendor to AS&C (Important to place filled bottle back into both baggies)
						[16]Analyses Required		4	4	3,4	3,4	4
2013005228		FGD Purge Eff	3/13/13	8:00	D. Workm			1	1	1	1	1
29		EQ Tank Eff.	3/13/13	8:05						1	1	
30		BioReactor 1 Inf	3/13/13	8:10						1**	1	1
31		BioReactor 2 Inf	3/13/13	8:15						1**		
32		BioReactor 2 Eff	3/13/13	8:20					1	1		1
33		Filter Blk	3/13/13	8:25							1	
34		Metals Trip Blk	3-5	1050	cptnorf					1**		1

Filtering of the Se is performed in the field please provide a filter blank too.

Customer to sign & date below - fill out from left to right.

1) Relinquished By: Travis Thornton	Date/Time: 3/14/13 14:00	2) Accepted By:	Date/Time: 3-15-13 1015
3) Relinquished By:	Date/Time: 3-18-13	4) Accepted By	Date/Time
5)Relinquished By	Date/Time	6)Accepted By:	Date/Time
7)Relinquished By	Date/Time	8)Accepted By:	Date/Time
9)Seal/Locked By	Date/Time	10) Seal/Lock Opened By: Jacki Ford	Date/Time: 3/19/13 1500 -0.2
11)Seal/Locked By	Date/Time	12)Seal/Lock Opened By	Date/Time

Comments

* B, Mn by TRM/ICP As, Cr, Cu, Ni, Se, Ag, Zn by TRM/IMS 1**=No Hg ** travis.thornton@siemens.com

Customer, IMPORTANT! Please indicate desired turnaround.

[22]Requested Turnaround
14 Days ___
*7 Days ___
*48 Hr ___
*Other ___
* Add. Cost Will Apply

3-25-13

April 2, 2013

Duke Energy
ATTN: Jay Perkins
Scientific Support-Laboratory
13339 Hagers Ferry Road
Huntersville NC 28078
jcperkins@duke-energy.com
labcustomer@duke-energy.com

RE: Project DUK-HV1201 Client Project: J13030084

Dear Mr. Perkins,

On March 19, 2013, Brooks Rand Labs (BRL) received three (3) waste water samples and three (3) field blanks samples. The samples were logged-in for total mercury (Hg) analysis. All samples were received, prepared, analyzed, and stored according to BRL SOPs and EPA methodology.

The results were blank-corrected as described in the calculations section of the relevant SOP and may have been evaluated using reporting limits that have been adjusted to account for sample aliquot size. Please refer to the *Sample Results* page for sample-specific MDLs, MRLs, and other details.

All data was reported without further qualification, aside from concentration qualifiers, and all associated quality control sample results met the acceptance criteria.

BRL, an accredited laboratory, certifies the reported results of all analyses for which BRL is NELAP accredited meet all NELAP requirements. For more details, see the *Report Information* page of the report.

Please feel free to contact me if you have any questions regarding this report.

Sincerely,

Lydia Greaves

Lydia Greaves
Project Manager
lydia@brooksrand.com

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Report Information

Laboratory Accreditation

BRL is accredited by the *National Environmental Laboratory Accreditation Program* (NELAP) through the State of Florida Department of Health, Bureau of Laboratories (E87982) and is certified to perform many environmental analyses. BRL is also certified by many other states to perform environmental analyses. For a current list of our accreditations/certifications, please visit our website at <http://www.brooksrand.com/default.asp?contentID=586>. Results reported relate only to the samples listed in the report.

Field Quality Control Samples

Please be notified that certain EPA methods require the collection of field quality control samples of an appropriate type and frequency; failure to do so is considered a deviation from some methods and for compliance purposes should only be done with the approval of regulatory authorities. Please see the specific EPA methods for details regarding required field quality control samples.

Common Abbreviations

BLK	method blank	**MS**	matrix spike
BRL	Brooks Rand Labs	**MSD**	matrix spike duplicate
BS	laboratory fortified blank	**ND**	non-detect
CAL	calibration standard	**NR**	non-reportable
CCV	continuing calibration verification	**PS**	post preparation spike
COC	chain of custody record	**REC**	percent recovery
CRM	certified reference material	**RPD**	relative percent difference
D	dissolved fraction	**RSD**	relative standard deviation
DUP	duplicate	**SCV**	secondary calibration verification
ICV	initial calibration verification	**SOP**	standard operating procedure
MDL	method detection limit	**SRM**	standard reference material
MRL	method reporting limit	**T**	total recoverable fraction

Definition of Data Qualifiers

(Effective 9/23/09)

B Detected by the instrument, the result is > the MDL but ≤ the MRL. Result is reported and considered an estimate.
E An estimated value due to the presence of interferences. A full explanation is presented in the narrative.
H Holding time and/or preservation requirements not met. Result is estimated.
J Estimated value. A full explanation is presented in the narrative.
J-M Duplicate precision (RPD) for associated QC sample was not within acceptance criteria. Result is estimated.
J-N Spike recovery for associated QC sample was not within acceptance criteria. Result is estimated.
M Duplicate precision (RPD) was not within acceptance criteria. Result is estimated.
N Spike recovery was not within acceptance criteria. Result is estimated.
R Rejected, unusable value. A full explanation is presented in the narrative.
U Result is ≤ the MDL or client requested reporting limit (CRRL). Result reported as the MDL or CRRL.
X Result is not BLK-corrected and is within 10x the absolute value of the highest detectable BLK in the batch. Result is estimated.

These qualifiers are based on those previously utilized by Brooks Rand Labs, those found in the EPA SOW ILM03.0, Exhibit B, Section III, pg. B-18, and the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review; USEPA; January 2010. These supersede all previous qualifiers ever employed by BRL.

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Information

Sample	Lab ID	Report Matrix	Type	Sampled	Received
BioReactor 1 Inf	1312005-01	Influent	Sample	03/13/2013	03/19/2013
Hg Blk BioReactor 1 Inf	1312005-02	DIW	Field Blank	03/13/2013	03/19/2013
BioReactor 2 Inf	1312005-03	Influent	Sample	03/13/2013	03/19/2013
Hg Blk BioReactor 2 Inf	1312005-04	DIW	Field Blank	03/13/2013	03/19/2013
BioReactor 2 Eff	1312005-05	Effluent	Sample	03/13/2013	03/19/2013
Hg Blk BioReactor 2 Eff	1312005-06	DIW	Field Blank	03/13/2013	03/19/2013

Batch Summary

Analyte	Lab Matrix	Method	Prepared	Analyzed	Batch	Sequence
Hg	Water	EPA 1631	03/25/2013	03/27/2013	B130466	1300205

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Results

Sample	Analyte	Report Matrix	Basis	Result	Qualifier	MDL	MRL	Unit	Batch	Sequence
BioReactor 1 Inf										
1312005-01	Hg	Influent	T	148		3.79	10.1	ng/L	B130466	1300205
BioReactor 2 Eff										
1312005-05	Hg	Effluent	T	7.57		0.16	0.42	ng/L	B130466	1300205
BioReactor 2 Inf										
1312005-03	Hg	Influent	T	15.7		0.15	0.40	ng/L	B130466	1300205
Hg Blk BioReactor 1 Inf										
1312005-02	Hg	DIW	T	0.15	U	0.15	0.40	ng/L	B130466	1300205
Hg Blk BioReactor 2 Eff										
1312005-06	Hg	DIW	T	0.16	U	0.16	0.41	ng/L	B130466	1300205
Hg Blk BioReactor 2 Inf										
1312005-04	Hg	DIW	T	0.15	U	0.15	0.41	ng/L	B130466	1300205

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Accuracy & Precision Summary

Batch: B130466
Lab Matrix: Water
Method: EPA 1631

Sample	Analyte	Native	Spike	Result	Units	REC & Limits	RPD & Limits
B130466-SRM1	**Certified Reference Material (1313016, NIST 1641d 1000x dilution)**						
	Hg		15.68	15.64	ng/L	100% 85-115	
B130466-MS2	**Matrix Spike (1312004-01)**						
	Hg	91.47	1010	1032	ng/L	93% 71-125	
B130466-MSD2	**Matrix Spike Duplicate (1312004-01)**						
	Hg	91.47	1010	1096	ng/L	99% 71-125	6% 24

Method Blanks & Reporting Limits

Batch: B130466
Matrix: Water
Method: EPA 1631
Analyte: Hg

Sample	Result	Units
B130466-BLK1	0.12	ng/L
B130466-BLK2	0.11	ng/L
B130466-BLK3	0.09	ng/L
B130466-BLK4	0.12	ng/L

Average: 0.11 **Standard Deviation:** 0.01 **MDL:** 0.16
Limit: 0.50 **Limit:** 0.10 **MRL:** 0.42

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Instrument Calibration

Sequence: 1300205
Instrument: THG-06
Date: 03/27/2013
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1300205-IBL1		3.86	pg of Hg		
1300205-IBL2		4.24	pg of Hg		
1300205-IBL3		4.10	pg of Hg		
1300205-IBL4		4.15	pg of Hg		
1300205-CAL1	10.00	9.71	pg of Hg	97%	
1300205-CAL2	25.00	25.72	pg of Hg	103%	
1300205-CAL3	100.0	99.09	pg of Hg	99%	
1300205-CAL4	500.0	514.5	pg of Hg	103%	
1300205-CAL5	2500	2434	pg of Hg	97%	
1300205-CAL6	10000	10090	pg of Hg	101%	
1300205-ICV1	1568	1564	pg of Hg	100%	85-115
1300205-CCB1		7.16	pg of Hg		
1300205-CCV1	500.0	496.3	pg of Hg	99%	77-123
1300205-CCB2		5.67	pg of Hg		
1300205-CCB3		5.10	pg of Hg		
1300205-CCB4		5.16	pg of Hg		
1300205-CCV2	500.0	495.6	pg of Hg	99%	77-123
1300205-CCB5		5.39	pg of Hg		
1300205-CCV3	500.0	488.5	pg of Hg	98%	77-123
1300205-CCB6		4.87	pg of Hg		
1300205-CCV4	500.0	489.8	pg of Hg	98%	77-123
1300205-CCB7		5.49	pg of Hg		
1300205-CCV5	500.0	476.2	pg of Hg	95%	77-123
1300205-CCB8		4.32	pg of Hg		
1300205-CCV6	500.0	477.9	pg of Hg	96%	77-123
1300205-CCB9		4.57	pg of Hg		
1300205-CCV7	500.0	485.9	pg of Hg	97%	77-123
1300205-CCBA		4.64	pg of Hg		
1300205-CCV8	500.0	478.9	pg of Hg	96%	77-123
1300205-CCBB		4.61	pg of Hg		
1300205-CCV9	500.0	479.5	pg of Hg	96%	77-123
1300205-CCBC		4.63	pg of Hg		
1300205-CCVA	500.0	484.4	pg of Hg	97%	77-123
1300205-CCBD		5.20	pg of Hg		
1300205-CCVB	500.0	481.7	pg of Hg	96%	77-123
1300205-CCBE		4.53	pg of Hg		
1300205-CCVC	500.0	481.2	pg of Hg	96%	77-123
1300205-CCBF		4.36	pg of Hg		
1300205-CCVD	500.0	478.7	pg of Hg	96%	77-123
1300205-CCBG		5.19	pg of Hg		

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Instrument Calibration

Sequence: 1300205
Instrument: THG-06
Date: 03/27/2013
Analyte: Hg

Total Mercury and Mercury Speciation by CVAFS
Method: EPA 1631

Lab ID	True Value	Result	Units	REC & Limits	
1300205-CCVE	500.0	477.9	pg of Hg	96%	77-123
1300205-CCBH		5.10	pg of Hg		
1300205-CCVF	500.0	505.9	pg of Hg	101%	77-123
1300205-CCBI		4.60	pg of Hg		
1300205-CCVG	500.0	509.4	pg of Hg	102%	77-123
1300205-CCBJ		5.14	pg of Hg		

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Sample Containers

Lab ID: 1312005-01
Sample: BioReactor 1 Inf
Report Matrix: Influent
Sample Type: Sample
Collected: 03/13/2013
Received: 03/19/2013

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500mL	71666330 10	none	n/a		Cooler

Lab ID: 1312005-02
Sample: Hg Blk BioReactor 1 Inf
Report Matrix: DIW
Sample Type: Field Blank
Collected: 03/13/2013
Received: 03/19/2013

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500mL	71666330 10	none	n/a		Cooler

Lab ID: 1312005-03
Sample: BioReactor 2 Inf
Report Matrix: Influent
Sample Type: Sample
Collected: 03/13/2013
Received: 03/19/2013

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500mL	71666330 10	none	n/a		Cooler

Lab ID: 1312005-04
Sample: Hg Blk BioReactor 2 Inf
Report Matrix: DIW
Sample Type: Field Blank
Collected: 03/13/2013
Received: 03/19/2013

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500mL	71666330 10	none	n/a		Cooler

Lab ID: 1312005-05
Sample: BioReactor 2 Eff
Report Matrix: Effluent
Sample Type: Sample
Collected: 03/13/2013
Received: 03/19/2013

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500mL	71666330 10	none	n/a		Cooler

Lab ID: 1312005-06
Sample: Hg Blk BioReactor 2 Eff
Report Matrix: DIW
Sample Type: Field Blank
Collected: 03/13/2013
Received: 03/19/2013

Des	Container	Size	Lot	Preservation	P-Lot	pH	Ship. Cont.
A	Bottle FLPE Hg-T	500mL	71666330 10	none	n/a		Cooler

Project ID: DUK-HV1201
PM: Tiffany Stilwater

Client PM: Jay Perkins
Client PO: 141391

Shipping Containers

Cooler

Received: March 19, 2013 9:20
Tracking No: 1Z76654X0190322681 via UPS
Coolant Type: Ice
Temperature: 0.9 °C

Description: Cooler
Damaged in transit? No
Returned to client? No

Custody seals present? No
Custody seals intact? No
COC present? Yes

1312005

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

ORDER # J13030084 | Sample Class OTHER | Samples Originating From NC X SC ___

Logged By | Date & Time | SAMPLE PROGRAM Water ___ Ground ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___

Cooler Temp (C)

DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Customer must Complete

1)Project Name: Belews - FGD WWTS, Bi-Monthly Sampling)		2)Phone No:
2) Client: Bill Kennedy, Melonie Martin, Wayne Chapman, Travis Thornton *		4)Fax No:
5)Business Unit:	6)Process:	Mail Code:
8)Oper. Unit:	9)Res. Type:	10)Reso. Center:

Brooks Rand
PO#141391

MR #

[15]Preserv.:1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None

Customer to complete all appropriate non-shaded areas.

Sampling conducted: 2nd Wednesday each month

LAB USE ONLY [11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	[16]Analyses Required: Hg T63T (V_BR) second week sampling only
								5
2013005235		BioReactor 1 Inf	3/13/13	8:10	W. Worton			1
36		Hg Blk BioReactor 1 Inf						1
37		BioReactor 2 Inf	3/13/13	8:15				1
38		Hg Blk BioReactor 2 Inf						1
39		BioReactor 2 Eff	3/13/13	8:20				1
40		Hg Blk BioReactor 2 Eff						1

Use the Bioreactor 2 Inf or EFF sample as the MS/MSD

LL Hg BLK water sent with Hg bottles too

Customer to complete appropriate columns to right.

Customer to sign & date below - fill out from left to right.

1) Relinquished By: Travis Thornton	Date/Time: 3/14/13 14:00	2) Accepted By:	Date/Time: 3-15-13 1015
3) Relinquished By	Date/Time	4) Accepted By	Date/Time
5)Relinquished By	Date/Time	6)Accepted By:	Date/Time
7)Relinquished By	Date/Time	8)Accepted By:	Date/Time
9)Seal/Locked By	Date/Time	10) Seal/Lock Opened By: Lori Wilt	Date/Time: 3/19/13 0920
11)Seal/Locked By	Date/Time	12)Seal/Lock Opened By	Date/Time

Comments: *travis.thornton@siemens.com

Customer, IMPORTANT! Please indicate desired turnaround.

[22]Requested Turnaround

14 Days ___
*7 Days ___
*48 Hr ___
*Other ___
* Add. Cost Will Apply

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

ORDER# J13030084 | MATRIX: OTHER | Samples Originating From NC X SC ___

Logged By JT | Date & Time 3-15-13 1034 | SAMPLE PROGRAM Ground Water ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___

Cooler Temp (C) 3.2

DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Customer must Complete

[1]Project Name: Belews - FGD WWTS Bi-Monthly Sampling)		[2]Phone No:
[2] Client: Bill Kennedy, Melonie Martin, Wayne Chapman, Travis Thornton **		[4]Fax No:
[5]Business Unit:	[6]Process:	Mail Code:
[8]Oper. Unit:	[9]Res. Type:	[10]Reso. Center:

AS&C
PO#133241

[15]Preserv.: 1=HCL 2=H_2SO_4 3=HNO_3 4=Ice 5=None

MR #

Customer to complete all appropriate non-shaded areas.

Sampling conducted: 2nd and 4th Wednesday

LAB USE ONLY

Customer to complete appropriate columns to right

[11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	TDS	Br (Dionex)	Metals* + Hg**	Mn (ICP) Se (IMS), sol	Se, speciation - vendor to AS&C (Important to place filled bottle back into both baggies)
2013005228		FGD Purge Eff	3/13/13	8:00	N. Workm			1	1	1	1	1
29		EQ Tank Eff.	3/13/13	8:05						1	1	
30		BioReactor 1 Inf	3/13/13	8:10						1**	1	1
31		BioReactor 2 Inf	3/13/13	8:15						1**		
32		BioReactor 2 Eff	3/13/13	8:20					1	1		1
33		Filter Blk	3/13/13	8:25							1	
34		Metals Trip Blk	3-5	1050	copenoff					1**		1

Filtering of the Se is performed in the field please provide a filter blank too.

Customer to sign & date below - fill out from left to right.

1) Relinquished By: Travis Thornton	Date/Time: 3/14/13 14:00	2) Accepted By:	Date/Time: 3-15-13 1015
3) Relinquished By:	Date/Time: 3-18-13	4) Accepted By	Date/Time
5)Relinquished By	Date/Time	6)Accepted By:	Date/Time
7)Relinquished By	Date/Time	8)Accepted By:	Date/Time
9)Seal/Locked By	Date/Time	10) Seal/Lock Opened By	Date/Time
11)Seal/Locked By	Date/Time	12)Seal/Lock Opened By	Date/Time

Comments

* B, Mn by TRM/ICP As, Cr, Cu, Ni, Se, Ag, Zn by TRM/IMS 1**=No Hg ** travis.thornton@siemens.com

Customer, IMPORTANT! Please indicate desired turnaround.

[22]Requested Turnaround

14 Days ___
*7 Days ___
*48 Hr ___
*Other ___
* Add. Cost Will Apply

3-25-13

CHAIN OF CUSTODY RECORD AND ANALYSIS REQUEST FORM

Duke Energy SM

Duke Energy Analytical Laboratory
Mail Code MGO3A2 (Building 7405)
13339 Hagers Ferry Rd
Huntersville, N. C. 28078
(704) 875-5245
Fax: (704) 875-4349

Analytical Laboratory Use Only

ORDER # J13030084 | Sample Class OTHER | Samples Originating From NC X SC ___

Logged By | Date & Time | SAMPLE PROGRAM Water ___ Ground ___ NPDES ___ Drinking Water ___ UST ___ RCRA Waste ___

Cooler Temp (C)

[19]Page 2 of 2

DISTRIBUTION
ORIGINAL to LAB,
COPY to CLIENT

Customer must Complete

[1]Project Name: Belews - FGD WWTS, Bi-Monthly Sampling)		[2]Phone No:
[2] Client: Bill Kennedy, Melonie Martin, Wayne Chapman, Travis Thornton *		[4]Fax No:
[5]Business Unit:	[6]Process:	Mail Code:
[8]Oper. Unit:	[9]Res. Type:	[10]Reso. Center:

Brooks Rand
PO#141391

MR #

[15]Preserv.: 1=HCl 2=H_2SO_4 3=HNO_3 4=Ice 5=None

Customer to complete all appropriate non-shaded areas.

Sampling conducted: 2nd Wednesday each month

LAB USE ONLY

Customer to complete appropriate columns to right

[11]Lab ID	Se Speciation Bottle ID	[13]Sample Description or ID	Date	Time	Signature	[17]Comp.	[18]Grab	[16]Analyses Required: Hg 1631 (V_BR) second week sampling only	5
201300523									
36		BioReactor 1 Inf	3/13/13	8:10	W. Worten			1	
37		Hg Blk BioReactor 1 Inf						1	
38		BioReactor 2 Inf	3/13/13	8:15				1	
39		Hg Blk BioReactor 2 Inf						1	
40		BioReactor 2 Eff	3/13/13	8:20				1	
		Hg Blk BioReactor 2 Eff						1	

Use the Bioreactor 2 Inf or EFF sample as the MS/MSD

LL Hg BLK water sent with Hg bottles too

Customer to sign & date below - fill out from left to right.

1) Relinquished By: Travis Thornton	Date/Time: 3/14/13 14:00	2) Accepted By:	Date/Time: 3-15-13 1015
3) Relinquished By	Date/Time	4) Accepted By	Date/Time
5)Relinquished By	Date/Time	6)Accepted By:	Date/Time
7)Relinquished By	Date/Time	8)Accepted By:	Date/Time
9)Seal/Locked By	Date/Time	10) Seal/Lock Opened By	Date/Time
11)Seal/Locked By	Date/Time	12)Seal/Lock Opened By	Date/Time

Comments
*travis.thornton@siemens.com

Customer, IMPORTANT!
Please indicate desired turnaround.

[22]Requested Turnaround
14 Days ___
*7 Days ___
*48 Hr ___
*Other ___
* Add. Cost Will Apply